

What is claimed is:

1. A method for converting digital video from a first compressed format to a second compressed format, the method comprising:

5 receiving an input digital video stream in said first compressed format;
demultiplexing said input digital video stream so as to generate a multiplicity of constituent data streams, wherein said constituent data streams include a compressed data stream;

10 decompressing said compressed data stream so as to generate a decompressed data stream;

compressing said decompressed data stream so as to generate a recompressed data stream, wherein said recompressed data stream is more compressed than said compressed data stream and wherein said recompressed data stream conveys identical semantic information as said compressed data stream; and

15 multiplexing said recompressed data stream and a subset of said constituent data streams that was not subject to said decompressing into an output digital video stream in said second compressed format.

20 2. The method of claim 1, wherein said constituent data streams include an uncompressed data stream, wherein said compressing includes compressing said uncompressed data stream so as to generate a newly compressed data stream and wherein said multiplexing includes multiplexing said newly compressed data stream with said recompressed data stream and the subset of said constituent data streams that was not subject to said decompressing or said compressing.

25 3. The method of claim 2, wherein said compressing said uncompressed data stream includes compressing said uncompressed data stream according to arithmetic coding techniques so as to generate said newly compressed data stream as an arithmetically coded stream.

30

4. The method of claim 1, wherein said compressed data stream is Huffman coded and wherein compressing said decompressed data stream includes compressing said decompressed data stream according to entropy coding techniques.

5 5. The method of claim 4 wherein said compressing said decompressed data stream includes compressing said decompressed data according to arithmetic coding techniques.

6. The method of claim 1 wherein said input digital video stream comprises an MPEG-4 digital video stream.

10 7. The method of claim 1 wherein said first compressed format is an H.264 CAVLC compressed format and wherein said second compressed format is H.264 CABAC compressed format.

8. A method for converting digital video from a first compressed format to a second compressed format, the method comprising:

receiving an input digital video stream in said first compressed format;

15 demultiplexing said input digital video stream so as to generate a multiplicity of constituent data streams, wherein said constituent data streams include a compressed data stream;

decompressing said compressed data stream so as to generate a decompressed data stream;

20 compressing said decompressed data stream so as to generate a recompressed data stream, wherein said recompressed data stream conveys identical semantic information as said compressed data stream; and

25 multiplexing said recompressed data stream with a subset of said constituent data streams that was not subject to said decompressing into an output digital video stream in said second compressed format.

9. The method of claim 8 wherein said compressing includes compressing said decompressed data stream according to Huffman coding techniques so as to generate said recompressed data stream as a Huffman coded stream, and wherein said compressed data stream is an arithmetic coded data stream.

5

10. The method of claim 8 wherein said constituent data streams include another compressed data stream and wherein said decompressing includes decompressing said other compressed data stream so as to generate an uncompressed data stream; said multiplexing including multiplexing said uncompressed data stream with said recompressed data stream and said constituent data streams that was not subject to said decompressing.

10

11. The method of claim 8 wherein said compressed data stream is an arithmetic coded data stream and wherein said decompressing includes decompressing said compressed data stream according to arithmetic coding techniques.

15

12. The method of claim 10 wherein said compressed data stream is an arithmetic coded data stream and wherein said decompressing includes decompressing said compressed data stream according to arithmetic coding techniques.

20

13. A processor readable medium containing processor executable instructions
for:

receiving an input digital video stream in a first compressed format;

demultiplexing said input digital video stream so as to generate a multiplicity of
5 constituent data streams, wherein said constituent data streams include a compressed data
stream;

decompressing said compressed data stream so as to generate a decompressed
data stream;

compressing said decompressed data stream so as to generate a recompressed data
10 stream, wherein said recompressed data stream is more compressed than said compressed data
stream and wherein said recompressed data stream conveys identical semantic information as
said compressed data stream; and

multiplexing said recompressed data stream and a subset of said constituent data
streams that was not subject to said decompressing into an output digital video stream in a
15 second compressed format.

14. The processor readable medium of claim 13, wherein said constituent data
streams include an uncompressed data stream, wherein said compressing includes compressing
said uncompressed data stream so as to generate a newly compressed data stream, wherein said
20 multiplexing includes multiplexing said newly compressed data stream with said recompressed
data stream and the subset of said constituent data streams that was not subject to said
decompressing or said compressing.

15. The processor readable medium of claim 14, wherein said compressing said
25 uncompressed data stream includes compressing said uncompressed data stream according to
arithmetic coding techniques so as to generate said newly compressed data stream as an
arithmetically coded stream.

16. The processor readable medium of claim 13 wherein said compressed data
30 stream is Huffman coded and wherein compressing said decompressed data stream includes
compressing said decompressed data stream according to entropy coding techniques.

17. The processor readable medium of claim 16 wherein said compressing said decompressed data includes compressing said decompressed data according to arithmetic coding techniques.

5 18. The processor readable medium of claim 13, wherein said input digital video stream comprises an MPEG-4 digital video stream.

19. The processor readable medium of claim 13, wherein said first compressed format is an H.264 CAVLC compressed format and wherein said second compressed format is
10 H.264 CABAC compressed format.

20. A processor readable medium containing processor executable instructions for:

receiving an input digital video stream in a first compressed format;

15 demultiplexing said input digital video stream so as to generate a multiplicity of constituent data streams, wherein said constituent data streams include a compressed data stream;

decompressing said compressed data stream so as to generate a decompressed data stream;

20 compressing said decompressed data stream so as to generate a recompressed data stream, wherein said recompressed data stream conveys identical semantic information as said compressed data stream; and

25 multiplexing said recompressed data stream with a subset of said constituent data streams that was not subject to said decompressing into an output digital video stream in a second compressed format.

21. The processor readable medium of claim 20 wherein said compressing includes compressing said decompressed data stream according to Huffman coding techniques so as to generate said recompressed data stream as a Huffman coded stream, and wherein said compressed data stream is an arithmetic coded data stream.

5

22. The processor readable medium of claim 20 wherein said constituent data streams include another compressed data stream and wherein said decompressing includes decompressing said other compressed data stream so as to generate an uncompressed data stream; said multiplexing including multiplexing said uncompressed data stream with said recompressed data stream and the subset of said constituent data streams that was not subject to said decompressing.

10

23. The processor readable medium of claim 20 wherein said compressed data stream is an arithmetic coded data stream and wherein said decompressing includes decompressing said uncompressed data stream according to arithmetic coding.

15

24. The processor readable medium of claim 22 wherein said compressed data stream is an arithmetic coded data stream and wherein said decompressing includes decompressing said compressed data stream according to arithmetic coding.

20

25. A method for transforming uncompressed video frames into at least two compressed formats, the method comprising:

receiving uncompressed video frames;

processing said uncompressed video frames into intermediate data streams;

5 applying a first entropy compression format to at least some of said intermediate data streams so as to generate a first set of compressed data streams;

applying a second entropy compression format to at least some of said intermediate data streams so as to generate a second set of compressed data streams;

10 multiplexing at least said first set of compressed data streams so as to generate a video stream in accordance with said first format; and

multiplexing at least said second set of compressed data streams so as to generate a video stream in accordance with said second format.

26. A processor readable medium containing processor executable instructions for:

15 receiving uncompressed video frames;

processing said uncompressed video frames into intermediate data streams;

applying a first entropy compression format to at least some of said intermediate data streams so as to generate a first set of compressed data streams;

20 applying a second entropy compression format to at least some of said intermediate data streams so as to generate a second set of compressed data streams;

multiplexing at least said first set of compressed data streams so as to generate a video stream in accordance with said first format; and

multiplexing at least said second set of compressed data streams so as to generate a video stream in accordance with said second format.

25

27. A method for converting digital video from a first compressed format to a second compressed format, the method comprising:

receiving an input digital video stream in said first compressed format;

demultiplexing said input digital video stream so as to generate one or more

5 compressed data streams and an uncompressed data stream;

decompressing one of said one or more compressed data streams so as to generate a decompressed data stream;

compressing said decompressed data stream so as to generate a recompressed data stream;

10 compressing said uncompressed data stream so as to generate a newly compressed data stream; and

multiplexing said recompressed data stream and said newly compressed data stream into an output digital video stream in said second compressed format.

15 28. The method of claim 27, wherein said multiplexing includes multiplexing another of said one or more compressed data streams with said recompressed data stream and said newly compressed data stream.

29. A method for converting digital video from a first compressed format to a second compressed format, the method comprising:

receiving an input digital video stream in said first compressed format;

demultiplexing said input digital video stream so as to generate a plurality of

compressed data streams;

decompressing one of said plurality of compressed data streams so as to generate

25 a decompressed data stream;

compressing said decompressed data stream so as to generate a recompressed data stream, wherein said recompressed data stream is more compressed than said one of said plurality of compressed data streams; and

30 multiplexing said recompressed data stream with another of said plurality of compressed data streams into an output digital video stream in said second compressed format.

30. The method of claim 29 wherein said compressing introduces losses that mean semantic information conveyed by said recompressed data stream is not identical to the semantic information conveyed by said one of said plurality of compressed data streams.

5 31. The method of claim 29 wherein said recompressed data stream conveys identical semantic information as said compressed data stream.